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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,292	04/20/2004	Shinichiroh Ikemasu	970607C	2627
38834	7590	09/01/2005	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP			WEISS, HOWARD	
1250 CONNECTICUT AVENUE, NW			ART UNIT	
SUITE 700			PAPER NUMBER	
WASHINGTON, DC 20036			2814	

DATE MAILED: 09/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/827,292	Applicant(s) IKEMASU ET AL.	
	Examiner Howard Weiss	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-32,38 and 42-51 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-32,38 and 42-51 ~~is~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 08/876,908.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0404</u> . | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 970607C

Filing Date: 4/20/04

Continuing Data: Division of 09/920,927 (8/3/01 now U.S. Patent No. 6,818,993) which
is a division of 08/876,908 (6/16/97 now U.S. Patent No. 6,344,692)

Claimed Foreign Priority Date: 7/18/96 (JPX)

Applicant(s): Ikemasu et al. (Okawa)

Examiner: Howard Weiss

Specification

1. The disclosure is objected to because of the following informalities: in the first paragraph of the Specification as amended 4/20/04, ---now U.S. Patent No. 6,818,993--- should be inserted after "2001." Appropriate correction is required.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claim 23 is objected to because of the following informalities: in Line 5, "rain" should be changed to ---drain---. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 23, 26, 30, 43 and 45 to 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashide (U.S. Patent No. 5,500,558).

Hayashide shows all aspects of the instant invention (e.g. Figure 1) including:

- a semiconductor substrate 1

- an MIS transistor with a gate insulating film **3**, gate electrode **4** and source/drain regions **6** (i.e. first /second impurity diffusion regions) and formed in an active area defined by isolation regions **2**
- first insulating film **5** and second insulating film **9** of silicon nitride
- first and second contact areas with first and second conductive layers **14**
- third insulating layer **10** with a third contact area and conductive layer **15**
- a fourth insulation film **19** of silicon nitride

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Initially, and with respect to Claim 50, note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al.*, 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or

obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that Applicant has burden of proof in such cases as the above case law makes clear.

8. Claims 24, 25, 27 to 29, 31, 32, 44 and 49 to 51 are rejected under 35 U.S.C. § 103(a) as obvious over Hayashide and Fukuda et al. (U.S. Patent No. 6,479,899).

Hayashide shows most aspects of the instant invention (Paragraph 5) except for the fourth and fifth conductive layer with a capacitor insulating film there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines and the claimed impurity concentrations. Fukuda et al. teach (e.g. Figures 24) to have fourth **27** and fifth conductive **34** layer with a capacitor insulating film **28** there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines **BL** to obtain a high yield (Column 4 Lines 4 to 8). It would have been obvious to a person of ordinary skill in the art at the time of invention to have fourth and fifth conductive layer with a capacitor insulating film there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines as taught by Fukuda et al. in the device of Hayashide to obtain a high yield.

Since the Applicant has not established the criticality of the concentrations stated and since these concentrations are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Hayashide. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that

the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

As to the grounds of rejection under "product-by-process", how the conductive layers are formed, either from the same or different conductive layers, pertains to process steps which do not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 38 and 42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 7 of U.S. Patent No. 6,344,692 in view of Fukuda et al. U.S. Patent No. 6,344,692 claims most aspects of the instant invention including D1>D3>D2. U.S. Patent No. 6,344,692 does not claim the second conductive layer being a capacitor opposing electrode of a capacitor. Fukuda et al. teach (e.g. Figures 24) to form capacitor opposing electrodes **PL,SN** from conductive layers **27,34** to obtain high yield (Column 4 Lines 4 to 8). It would have been obvious to a person of ordinary skill in the art at the time of invention to form capacitor opposing electrodes from conductive layers as taught

by Fukuda et al. in the claimed invention of U.S. Patent No. 6,344,692 to obtain high yield.

Conclusion

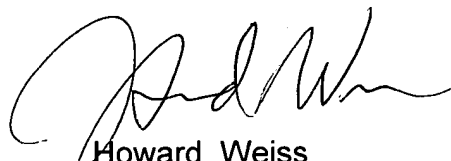
11. Paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.
12. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Howard.Weiss@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

Art Unit: 2814

14. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/758	8/30/05
Other Documentation: PLUS Analysis Report	8/26/05
Electronic Database(s): EAST, IEL	8/30/05

HW/hw
31 August 2005


Howard Weiss
Primary Patent Examiner
Art Unit 2814